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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,492	11/13/2001	Michael L. Frank	10001848-1	5612

7590 06/10/2005
AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

SAMS, MATTHEW C

ART UNIT	PAPER NUMBER
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2643

DATE MAILED: 06/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/008,492	Applicant(s) FRANK, MICHAEL L.	
	Examiner Matthew C. Sams	Art Unit 2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5 and 7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 5 and 7 is/are allowed.
- 6) ☐ Claim(s) 1,3 and 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action has been changed in response to the Amendment filed on 2/16/2005

Drawings

2. The drawings are objected to because they contain hand drawn figures. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Franca-Neto (US-6,721,544 herein after, Franca-Neto) in view of Tikka et al. (US-6,407,649).

Regarding claim 1, Franca-Neto discloses a differential radio that includes an antenna with an input and output (Fig. 1 [18 & 22]), a differential duplexer (Col. 2 lines 31-34), a differential low noise amplifier (Col. 3 lines 60-64), digital circuitry for signal processing (Col. 1 lines 38-48), distortion isolation (Col. 3 lines 60-62), and a differential power amplifier (Col. 3 lines 60-67).

It is well known in the art that the term differential implies accommodations for two signals in the circuit components. As is stated in the applicant's specification, an antenna is inherently differential (Paragraph [0004]). Franca-Neto does not explicitly state including differential filters and differential mixers, but it is well known in the art that a signal processing circuit encompasses filters and mixers.

Franca-Neto differs from the claimed invention by not mentioning the duplexer included film bulk acoustic resonators. However, Tikka teaches a film bulk acoustic resonator duplexer. (Col. 2 lines 9-13 and lines 25-64) At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the duplexer of Tikka in the differential radio like that of Franca-Neto. One of ordinary skill in the art would have been motivated to do this since a film bulk acoustic resonator duplexer is smaller than their ceramic counterparts. (Col. 2 lines 14-23)

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4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Franca-Neto in view of Tikka as applied to claim 1 above, in further view of Sainton et al (US-6,134,453 herein after, Sainton).

Franca-Neto in view of Tikka discloses the limitations of claim 1, but differs from the claimed invention in not specifically claiming the antenna being the form of a Yagi-Uda. However, Sainton discloses a radio communications circuit with a Yagi antenna. (Col. 6 lines 45-55) At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the differential radio of Franca-Neto in view of Tikka with the Yagi antenna like that of Sainton. One of ordinary skill in the art would have been motivated to do this since a Yagi antenna allow for transmitting and receiving in different transceiver ranges. (Col. 6 lines 45-55)

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Franca-Neto in view of Tikka and Sainton as applied to claim 3 above, and further in view of Podgorski (US-6,075,495).

Franca-Neto in view of Tikka and Sainton disclose all of the limitations of claim 3 above, but differ from the claimed invention in not specifically stating that the antenna could be incorporated into the printed circuit board. However, Podgorski discloses an antenna that is incorporated into a printed circuit board. (Col. 2 lines 20-24) At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the differential radio with a Yagi antenna of Franca-Neto in view of Tikka and Sainton while incorporating the antenna onto the printed circuit board like that of Podgorski. One of ordinary skill in the art would have been motivated to do this since

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having an antenna incorporated into a printed circuit board allows for communication at low and medium power levels. (Col. 2 lines 20-24)

Allowable Subject Matter

6. Claims 5 and 7 are allowed.

Response to Arguments

7. Applicant's arguments with respect to claims 1, 3 and 4 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McNamara, Dan, "FBAR Technology Shrinks CDMA Handset Duplexers" Microwaves and RF, September 2000 pg. 71-79.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Sams whose telephone number is (571)272-8099. The examiner can normally be reached on M-F 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (571)272-7499. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MCS
6/3/2005


CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600